

***TITSONA TIDA* CHAMBERLIN, 1962, A SYNONYM OF  
*CHONEIULUS PALMATUS* (NĚMEC, 1895)  
(DIPLOPODA: JULIDA: BLANIULIDAE), WITH  
NEW NORTH AMERICAN LOCALITY RECORDS<sup>1</sup>**

Rowland M. Shelley<sup>2</sup> and Henrik Enghoff<sup>3</sup>

**ABSTRACT:** The unlabeled syntypes of the millipede, *Titsona tida* Chamberlin, 1962, collected at Mercury, Nye County, Nevada, exist in the microscope slide collection at the National Museum of Natural History, Smithsonian Institution, Washington, DC. They comprise a fragmented female of *Choneiulus palmatus* (Němec, 1895) (Julida: Blaniulidae) and the severely distorted anterior segments of, apparently, a female callipodid, which, on a geographical basis, is probably *Colactis utorum* (Chamberlin, 1925) (Schizopetalidae). As an antenna of the former species has been dissected and mounted, a drawing of such being the only illustration accompanying the description, and other aspects of this account pertain to *C. palmatus*, we designate the blaniulid as the lectotype of *T. tida* and place the name in synonymy under *C. palmatus*, one of five European blaniulids that have been introduced into North America and occur here primarily in urban biotopes. Unpublished localities of *C. palmatus* from Canada and the United States are reported including the first from Québec, Connecticut, Illinois, Maryland, Minnesota, South Dakota, and Utah. A confirmatory illustration of two midbody segments of the lectotype shows the diagnostic setae of *C. palmatus* that occur along the caudal pleurotergal margins.

**KEY WORDS:** *Tisona tida*, *Choneiulus palmatus*, Diplopoda, Julida, Blaniulidae, new locality records, Canada, U.S.A., Holarctic, introduced millipede

In his final publication on millipeds, R. V. Chamberlin (1962) described three new species from Mercury, Nye County, Nevada, a small military community in the Nuclear Testing Area of the northern Mojave Desert, one of the most arid environments in the United States. The last account, and hence Chamberlin's final millipede description, was the proposal of *Titsona tida* n. sp. for two individuals of unspecified sexes collected in March 1960, a purported representative of the family Cambalidae (then called "Leioderidae"), order Spirostreptida, which is primarily known from relatively moist environments in California and Oregon west of the Sierra Nevada and Cascade Mountains, the Rocky Mountains and vicinity from Idaho to New Mexico, caves in Texas, and the forested biome that extends from eastern Texas to the Atlantic Coastal Plain (Loomis 1938; Chamberlin and Hoffman 1958; Shelley 1979, 1981; Hoffman 1980, 1999; Jeekel 2004). The type and only previously known species, *T. sima* Chamberlin, 1912, occurs in Yolo and Butte counties, California, in the first region above and some 370 mi (592 km) northwest of Mercury (Chamberlin 1912, Chamberlin and Hoffman 1958, Buckett 1964, Hoffman 1999, Shelley 2002a), so the species inhabit strikingly different environments. By itself, Chamberlin's description of *T. tida* provides nothing useful to ascertain its

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<sup>2</sup>Research Laboratory, North Carolina State Museum of Natural Sciences, 4301 Reedy Creek Road, Raleigh, North Carolina 27607 U.S.A. E-mail: rowland.shelley@ncmail.net.

<sup>3</sup>Natural History Museum of Denmark, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen, Denmark. E-mail: henghoff@zmuc.ku.dk.

identity, and the only illustration is a meaningless drawing of an antenna without setae. As noted by Hoffman (1999), "There is no way to deduce from the description what this taxon represents," so the enigmatic name, "*T. tida*," has been carried in the literature for 43 years, most recently being cited by Jeekel (2004).

According to Chamberlin (1962), the types of *T. tida* were deposited in his personal collection, which was transferred to the National Museum of Natural History, Smithsonian Institution, Washington, DC (NMNH), in 1972, after his death in November 1967, and Hoffman (1999) subsequently reported that the male holotype is at this institution even though Chamberlin did not mention sexes in the original description. However, *T. tida* is not included in the NMNH list of milliped types, and the specimens are not present in their type collection, as RMS searched for them in March 2004 without success. A topotype would thus seem necessary to clarify this name, but finding any millipeds in the desert at Mercury would be difficult, and with Chamberlin's meaningless description, there is the added problem of recognizing the species in the first place. Consequently, the destiny of *T. tida* would seem to be the *nomen dubium* or *nomen inquirendum* categories.

In addition to the NMNH's alcoholic or "wet" myriapod holdings (both types and non-types), there is also a collection of microscopic slides with specimens of millipeds and centipedes, and parts thereof, that were permanently mounted by researchers in the past. These slides have been generally ignored and their contents are unknown; RMS searched through them in 2004 for a missing centipede type and unexpectedly discovered two labeled "*Titsona tida*." The only other markings on the slide tags are "Ref. 93" on one and "Ref. 56" on the other, whose meanings are unknown; the locality is not mentioned nor are they labeled as "Types." However, we know of no other samples anywhere in the world identified as this species, and the slides contain two fragmented females with a separate antenna dissected from one, logically that drawn by Chamberlin (1962). We therefore consider these individuals as the syntypes of *T. tida* that were never marked as such. Both mounts are in poor condition with numerous bubbles in the medium beneath the coverslips. Milliped fragments extend through these bubbles and are difficult to discern, even under high power on a compound microscope, because of distortions by the surface films and menisci of the medium between the bubbles. The contents of these slides are as follows:

Slide marked "Ref. 93": The dissected antenna and a fragment containing the head and ca. 21 segments of a female of the family Blaniulidae (order Julida) possessing a row of long setae dorsally and dorsolaterally along the caudal margin of each pleurotergite (Fig. 1).

Slide marked "Ref. 56": One segment, oriented in caudal profile view, and two fragments of the same individual as evidenced by the long setae. One fragment contains ca. 16 midbody segments, and the other is the caudal end with around 13 segments. The segments are difficult to distinguish because of distortions from the bubbles and intervening strands of medium, so counts are only approximations, but the milliped has around 51 total segments. Also on this slide are the head and around 12 segments of the anterior end of another milliped that is severely dis-

torted but clearly does not have segmental setae. It appears to be a callipodidan and is logically *Colactis utorum* (Chamberlin, 1925) (Schizopetalidae), which occurs to the east and west, in Lincoln County, Nevada, and Inyo County, California (Shelley 1996).

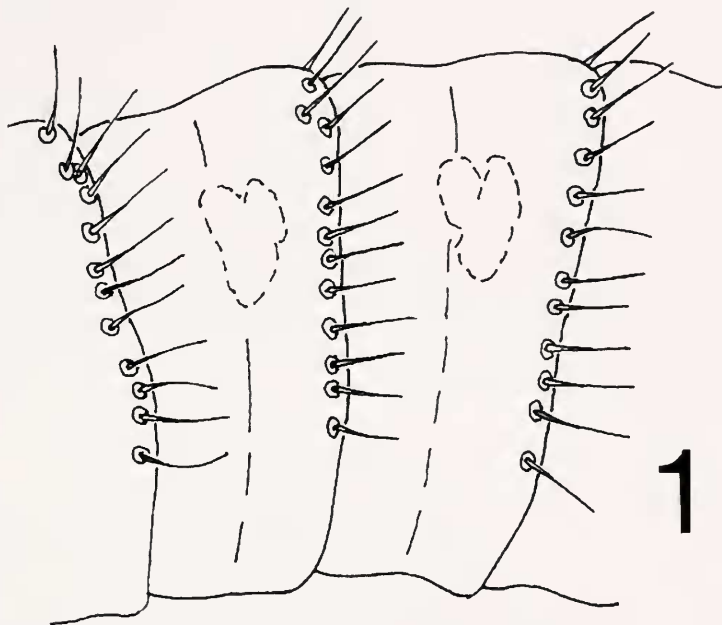


Fig. 1 Two midbody segments of the lectotype of *Titsona tida* showing the pleurotergal setae and defense glands, drawn at 200x.

As the dissected antenna corresponds to that drawn by Chamberlin (1962:55, fig. 6), we designate the blaniulid as the lectotype of *T. tida*. According to Chamberlin, the body in life was light brown with conspicuous defense glands laterally on each segment, which are visible on the slides as vaguely “heart-shaped” structures; there are also five ocelli arranged linearly on each side of the head with the medialmost significantly smaller. Coupled with the long pleurotergal setae (Fig. 1), these features are precisely those of *Choneiulus palmatus* (Němec, 1895), illustrated by Schubart (1934:188, fig. 298), Jeckel (1953, fig. 19), Enghoff and Shelley (1979:67, fig. 3), and Blower (1985:111, fig. 34A), and the roughly 51 segments of the lectotype correlate with the maximum of 58 segments on females reported by Enghoff (1984). *Choneiulus palmatus* is a native Palearctic milliped that occurs in Madeira, the Azores and Canary Islands, and widely in western Europe — Iceland, Ireland, Great Britain, Portugal, France, Luxembourg, Belgium, The Netherlands, Germany, Denmark, Poland, Czech Republic, Romania, Hungary, Switzerland, Italy, Norway, Sweden, Finland, Lithuania, and Russia

(European part) — and has probably been introduced to much of this area (Enghoff and Kime 2004). It is one of five European blaniulids that have been introduced into North America and now occur here primarily in urban habitats; with its synanthropic habits in the US and the absence of tree litter and moisture at Mercury, we surmise that the lectotype of *T. tida* was found in or beside one of the dwellings there. In North America, *C. palmatus* has been recorded from Nova Scotia, Newfoundland, and Ontario, Canada, and, in the United States, New York, Pennsylvania, Ohio, Colorado, Nevada, California, and Washington; it has also been introduced to Hawaii (Jawłowski 1939; Palmén 1952; Chamberlin and Hoffman 1958; Kevan 1983; Enghoff 1984; Shelley 1988, 2002*b*; Shelley and Swift 1998; Hoffman 1999). We therefore formally place *T. tida* in synonymy under *C. palmatus*, as summarized below, and provide unpublished North American records that the first author has discovered in 10 US repositories, which include one new Canadian province and six new US states. The contents of each sample (the total number of individuals and the number of each sex) were not always recorded, so this is only provided when known. Institutional acronyms are as follows:

AMNH – American Museum of Natural History, New York, NY.

CAS – California Academy of Sciences, San Francisco.

FSCA – Florida State Collection of Arthropods, Gainesville.

MCZ – Museum of Comparative Zoology, Harvard University, Cambridge, MA.

MPM – Milwaukee Public Museum, Milwaukee, WI.

NCSM – North Carolina State Museum of Natural Sciences, Raleigh.

NMNH – National Museum of Natural History, Smithsonian Institution, Washington, DC.

PMNH – Peabody Museum of Natural History, Yale University, New Haven, CT.

UCT – Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs.

USU – Biology Department, Utah State University, Logan.

### ***Choneiulus* Brolemann, 1921**

*Choneiulus* is characterized by the “fringed funnel” configuration of the male posterior gonopods and by the fully developed second legs of females. The gonopod morphology is shared with *Archichoneiulus* Brolemann, 1921, a north African genus that was synonymized under *Choneiulus* by Hoffman (1980) but retained as a separate genus by Enghoff (1984) because the second legs of females are reduced. *Choneiulus* includes five species, all confined to the western Mediterranean area of the Palearctic region except for *C. palmatus* (Enghoff 1984, 2001).

***Choneiulus palmatus* (Nemec, 1995)**

*Titsona tida* Chamberlin, 1962:54-55, fig. 6. Hoffman, 1999:112. Jeckel, 2004:74. **New Synonymy.**

**Diagnosis:** Distinguished from all other North American ocellate blaniulids (the indigenous species, *Virgoiulus minutus* (Brandt, 1841), and the introduced species, *Nopoiulus kochii* (Gervais, 1847) and *Proteroiulus fuscus* (Am Stein, 1857) by the presence of a row of very long setae dorsally and dorsolaterally along the caudal pleurotergal margins; the setae are considerably shorter in the other species (see Enghoff and Shelley 1979:67, figs. 1-4). From *P. fuscus*, which is most similar to *C. palmatus* in terms of pleurotergal setal lengths, *C. palmatus* differs by being more slender and by having the ocelli in a single row, whereas they form a narrow triangle in *P. fuscus* (see Blower, 1985:109, 111, figs. 33A-E, 34A). Males of *C. palmatus* are easily distinguished from other American species by the posterior gonopods, which resemble small, fringed funnels/trumpets and are usually visible in lateral view without dissection (pertinent illustrations in Enghoff and Shelley 1979 and Blower 1985). The female vulvae also exhibit a characteristic configuration but are difficult to dissect from these small, narrow millipeds (pertinent illustrations in Lohmander 1925, Enghoff and Shelley 1979, and Enghoff 1984).

**New North American Records:**

CANADA. NEWFOUNDLAND: southeast arm of Nameless Is., exact location unknown but possibly in Nameless Cove in northern Newfoundland near Anchor Point, ♀, July 8, 1938, BWB (NMNH). ONTARIO: *Middlesex Co.*, 9.4 mi (15 km) N London, June 23, 1983, R. G. Holmberg (FSCA). *Renfrew Co.*, Braeside, 4♀, April 11, 1987, L. LeSage, R. Skidmore (NCSM). QUÉBEC: Iberville Co., Iberville, Dietrich-Jooss Vineyard, May 14 - September 3, 1998, L. LeSage et al. (NCSM). *Missisquoi Co.*, Dunham, L'Orpailleur Vineyard, May 27, 1998, L. LeSage et al. (NCSM).

**New Provincial Record.**

UNITED STATES. CALIFORNIA: *San Francisco Co.*, San Francisco, along Lawton St. nr. 30th Ave., soil in sidewalk crack, ♂, April 23, 1991, P. Rubtsoff (CAS). COLORADO: *Larimer Co.*, Fort Collins, ♀, May 24, 1961, T. A. Woolley (MCZ). CONNECTICUT: *New Haven Co.*, New Haven, Edgewood Park, ♀♀, November 1973, M. Rico (PMNH) and Yale University campus, ♂, October 3, 1986, J. M. Tuteur (PMNH); and Woodbridge, ♀, May 11, 1961, C. L. Remington (PMNH). *Tolland Co.*, Storrs, July 16, 1974, collector unknown (UCT). **New State Record.** ILLINOIS: *Lake Co.*, Lake Forest, Lake Forest Ravine, in oak tree hole, 3♀, November 7, 1959, W. Suter (FSCA). **New State Record.** MARYLAND: *Montgomery Co.*, Bethesda, ♂, 5♀, November 4, 1978, T. J. Spillman (NMNH). **New State Record.** MINNESOTA: *Ramsey Co.*, St. Paul, ♂, April 25, 1935, H. H. Sheperd (FSCA). **New State Record.** NEVADA: Nye Co., Mercury, ♀, March 1960, collector unknown (NMNH). NEW YORK: *New York Co.*, New York City, Manhattan, Central Park, ♀, April 15, 1964, J. and W. Ivie (AMNH). *Tompkins Co.*, Ithaca, ♂, May 21, 1967, collector unknown (NMNH). *Westchester Co.*, Briarcliff Manor, ♂♂, ♀♀, April 16, 1979, A. M. Young (MPM, NCSM). OHIO: *Wayne Co.*, Wooster, April 14, 1958, A. A. Weaver (NCSM). SOUTH DAKOTA: *Pennington Co.*, Lead, along US Hwy. 85 at Homestake Mine, juv. ♂, 24♀, May 15, 1986, R. M. Shelley (NCSM). **New State Record.** UTAH: *Cache Co.*, Logan, ♀, March 29, 1972, B. G. Orpin (USU). *Salt Lake Co.*, Alta, July 1948, collector unknown (AMNH); and Salt Lake City, May 20, 1949, S. Mulaik (AMNH). **New State Record.**

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